

**Notice of Allowability**

Application No.

10/785,034

Applicant(s)

SHIBAKI ET AL.

Examiner

Art Unit

Seyed Azarian

2624

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/6/2007 and telephone interview and fax inquiry filed on October 25, 2007.
2. ☒ The allowed claim(s) is/are 1,6-19 and 21-25 now renumbered as 1-20.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 10/26/2007
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

### **Response to Amendment**

1. Based on applicant's amendment, filed on 8/6/2007, see page 2 through 4 of the remarks, also telephone interview and fax inquiry filed on October 25, 2007, with respect to cancellation of claims 2, 3, 4, 5 and 20, and amended claims 1, 6, 10, 11, 21, 22 and new claims of 23-25, have been fully considered and are persuasive, upon further consideration the rejection, of 103(a) for claims 1, 6-19 and 21-25, are hereby withdrawn.

The claims 1, 6-19 and 21-25 now renumbered as 1-20 are allowed.

### **EXAMINER'S AMENDMENT**

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it must be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Applicants Attorney (Kevin M. McKinley, Reg No. 43,794), on October 25, 2007, without traverse.

**The amended claims as follows:**

### Proposed Amendments

1. (Currently Amended) An image processing apparatus comprising:  
an information embedding unit that embeds, into an image signal, decision information that is information about a specific parameter of an image, wherein the decision information is information about degree of alteration of a spatial frequency characteristic of the image;  
an image-signal transmission unit that sends to an external device the image signal with the decision information;  
an image-signal reception unit that receives from the external device the image signal with the decision information;  
an embedded-information extraction unit that extracts the decision information from the image signal received;  
a parameter setting unit that determines degree of alteration of the image based on the decision information extracted and sets an image processing parameter based on the degree of alteration determined; and  
an image processing unit that subjects the image signal received to image processing based on the image processing parameter set.
- ~~2. (Canceled) The image processing apparatus according to claim 1, wherein the decision information is information about degree of alteration of a spatial frequency characteristic of the image.~~
- ~~3. (Canceled) The image processing apparatus according to claim 1, wherein the decision information is information about degree of alteration of graininess of the image.~~
- ~~4. (Canceled) The image processing apparatus according to claim 1, wherein the decision information is information about degree of alteration of density of the image.~~
- ~~5. (Canceled) The image processing apparatus according to claim 1, wherein the decision information is information about degree of alteration of the image and pixel position information that indicates where the decision information is embedded into the image signal, and  
the embedded information extraction unit extracts the pixel position information, and then extracts the decision information based on the pixel position information.~~
6. (Currently Amended) The image processing apparatus according to claim 23 4, wherein the decision information is a predetermined analysis pattern.

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7. (Original) The image processing apparatus according to claim 6, wherein the decision information is embedded in an image area where it is hard for a user to recognize the analysis pattern.

8. (Original) The image processing apparatus according to claim 7, wherein the decision information is embedded in a mesh image area.

9. (Original) The image processing apparatus according to claim 6, further comprising an image area separation unit that identifies areas in the image, and  
the information embedding unit embeds the decision information in accordance with the areas identified.

10. (Currently Amended) The image processing apparatus according to claim 23 4, wherein the decision information is numerical information representing a status of the image before the decision information is embedded.

11. (Currently Amended) The image processing apparatus according to claim 23 4, wherein the decision information is numerical information representing a status of the image before the decision information is embedded and information about position where the numerical information is embedded, and  
the information embedding unit embeds the decision information as an electronic watermark.

12. (Original) The image processing apparatus according to claim 11, wherein the information embedding unit embeds the decision information as a plurality of electronic watermarks of respectively different durability and characteristics.

13. (Original) The image processing apparatus according to claim 1, wherein the information embedding unit embeds the decision information in an image signal that has been subjected to image processing that includes any one of a resolution conversion process and a compression process in the image processing unit, and  
the parameter setting unit sets the image processing parameter based on both a parameter adjustment value according to contents of the image processing performed by the image processing unit and a parameter adjustment value according to the degree of alteration of the image based on the decision information extracted.

14. (Original) The image processing apparatus according to claim 1, wherein the information embedding unit embeds the decision information in an image signal that has been subjected to image processing that includes any one of a resolution conversion

process and a compression process in the image processing unit, and  
the embedded-information extraction unit that extracts the decision information from the image signal subjected to a process of resolution conversion to an original resolution and an expansion process.

15. (Original) An image processing apparatus comprising:

- an information embedding unit that embeds, into an image signal, information about density level of a predetermined pixel of an image and information about a position where the information about density level is embedded in the image signal;

- an image-signal transmission unit that sends to an external device the image signal with the information about the density level and the information about the position;

- an image-signal reception unit that receives from the external device the image signal with the information about the density level and the information about the position;

- an embedded-information extraction unit that extracts the information about the density level and the information about the position from the image signal received;

- a density-level detection unit that detects a present density level of the predetermined pixel at a position corresponding to the information about the position based on the information about the position extracted;

- a parameter setting unit that determines degree of alteration of an image density of the image based on the present density level detected by the density-level detection unit and the information about the density level extracted by the embedded-information extraction unit, and sets an image processing parameter based on the degree of alteration determined; and

- an image processing unit that subjects the image signal received to image processing based on the image processing parameter set.

16. (Original) The image processing apparatus according to claim 15, wherein the predetermined pixel is a pixel of a white background level.

17. (Original) The image processing apparatus according to claim 15, wherein the predetermined pixel is a black character pixel on a white background.

18. (Original) The image processing apparatus according to claim 15, wherein the predetermined pixel is a white pixel adjoining a black character on a white background.

19. (Original) An image processing apparatus comprising:

- an information embedding unit that embeds, into an image signal a number that is a total number of pixels that have a predetermined image attribute in an image;

- an image-signal transmission unit that sends to an external device the image signal

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with the number embedded;

an image-signal reception unit that receives from the external device the image signal with the number embedded;

an embedded-information extraction unit that extracts the number from the image signal received;

an image area separation unit that separates pixels that have the predetermined image attribute;

a pixel counting unit that calculates a total of the pixels separated by the image area separation unit as a present total;

a parameter setting unit that determines degree of alteration of the image based on the present total calculated by the pixel counting unit and the number extracted by the embedded-information extraction unit, and sets an image processing parameter based on the degree of alteration determined; and

an image processing unit that subjects the image signal received to image processing based on the image processing parameter set.

20. (Canceled) ~~An image processing apparatus comprising:~~

~~an information embedding unit that embeds, into an image signal, decision information that is information about a specific parameter of an image; and~~

~~an image signal transmission unit that sends to an external device the image signal with the decision information.~~

21. (Currently Amended) An image processing apparatus comprising:

an image-signal reception unit that receives from an external device an image signal in which decision information that is information about a specific parameter of an image is embedded, wherein the decision information is information about degree of alteration of a spatial frequency characteristic of the image;

an embedded-information extraction unit that extracts the decision information from the image signal received;

a parameter setting unit that determines degree of alteration of the image based on the decision information extracted and sets an image processing parameter based on the degree of alteration determined; and

an image processing unit that subjects the image signal received to image processing based on the image processing parameter set.

22. (Currently Amended) A method of processing image, comprising:

embedding into an image signal, decision information that is information about a specific parameter of an image, wherein the decision information is information about degree of alteration of a spatial frequency characteristic of the image;

sending to an external device the image signal with the decision information;  
receiving from the external device the image signal with the decision information;  
extracting the decision information from the image signal received;  
determining degree of alteration of the image based on the decision information extracted and setting an image processing parameter based on the degree of alteration determined; and  
subjecting the image signal received to image processing based on the image processing parameter set.

**23. (New) An image processing apparatus comprising:**

an information embedding unit that embeds, into an image signal, decision information that is information about a specific parameter of an image, wherein the decision information is information about degree of alteration of the image and pixel position information that indicates where the decision information is embedded into the image signal;  
an image-signal transmission unit that sends to an external device the image signal with the decision information;  
an image-signal reception unit that receives from the external device the image signal with the decision information;  
an embedded-information extraction unit that extracts the decision information from the image signal received, wherein the embedded-information extraction unit extracts the pixel position information, and then extracts the decision information based on the pixel position information;  
a parameter setting unit that determines degree of alteration of the image based on the decision information extracted and sets an image processing parameter based on the degree of alteration determined; and  
an image processing unit that subjects the image signal received to image processing based on the image processing parameter set.

**24. (New) An image processing apparatus comprising:**

an image-signal reception unit that receives from an external device an image signal in which decision information that is information about a specific parameter of an image is embedded, wherein the decision information is information about degree of alteration of the image and pixel position information that indicates where the decision information is embedded into the image signal;  
an embedded-information extraction unit that extracts the decision information from the image signal received, wherein the embedded-information extraction unit extracts the pixel position information, and then extracts the decision information based on the pixel position information;  
a parameter setting unit that determines degree of alteration of the image based on

the decision information extracted and sets an image processing parameter based on the degree of alteration determined; and

an image processing unit that subjects the image signal received to image processing based on the image processing parameter set.

**25. (New)** A method of processing image, comprising:

embedding into an image signal, decision information that is information about a specific parameter of an image, wherein the decision information is information about degree of alteration of the image and pixel position information that indicates where the decision information is embedded into the image signal;

extracting the pixel position information, and then extracting the decision information based on the pixel position information;

sending to an external device the image signal with the decision information;

receiving from the external device the image signal with the decision information;

extracting the decision information from the image signal received;

determining degree of alteration of the image based on the decision information extracted and setting an image processing parameter based on the degree of alteration determined; and

subjecting the image signal received to image processing based on the image processing parameter set.

**REASONS FOR ALLOWANCE**



3. The following is an examiner's statement of reasons for allowance.

This invention relates generally, to a method of and an apparatus for image processing.

Based on applicant's amendment, with respect to claims 1 representative of claims 21 and 22, the closest prior art of record (Takahashi and Aoyama), Takahashi reference is directed to a file system as well as to a recording medium with a program used in the system and is applicable in a processing system for executing data processing such as data copying, facsimile communications, and printing, capable of backing up treated data. Aoyama reference is directed to an image processing method, an image processing device and a recording medium, and in particular, to an image processing method, which carries out spatial frequency, enhancement processing on an original image signal (image data) obtained by a digital still camera under preferred processing conditions. But neither Takahashi nor Aoyama teach or suggest, among other things, "an information embedding unit that embeds, into an image signal, decision information that is information about a specific parameter of an image, wherein the decision information is information about degree of alteration of a spatial frequency characteristic of the image; an image-signal transmission unit that sends to an external device the image signal with the decision information; an image-signal reception unit that receives from the external device the image signal with the decision information; an embedded-information extraction unit that extracts the decision information from the image signal received".

Additionally claim 15 representative of claims 19 and 23-25, the closest prior art of record (Takahashi and Aoyama) do not teach or suggest, among other things, "embedded-information extraction unit that extracts the information about the density level and the information about the position from the image signal received; a density-level detection unit that detects a present density level of the predetermined pixel at a position corresponding to the information about the position based on the information about the position extracted; a parameter setting unit that

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determines degree of alteration of an image density of the image based on the present density level detected by the density-level detection unit and the information about the density level extracted by the embedded-information extraction unit, and sets an image processing parameter based on the degree of alteration determined; and an image processing unit that subjects the image signal received to image processing based on the image processing parameter set".

These key features in combination with the other features of the claimed invention are neither taught nor suggested by (Takahashi and Aoyama) prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### **Contact Information**

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.

Status information about the PAIR system, see [http:// pair-direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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*Seyed Azarian*  
*Patent Examiner*  
*Group Art Unit 2624*  
October 27, 2007

A handwritten signature in black ink, appearing to read "Seyed Azarian". The signature is written in a cursive, flowing style with a large initial 'S'.

SEYED AZARIAN  
PRIMARY EXAMINER